

2. ALTERNATIVES

The alternatives section is the heart of this EIS. This section describes the “status quo” alternative, the proposed action, and other reasonable alternatives that were studied. Because termination of the Corps’ regulatory process in Southwest Florida is not a practicable solution, there is no true No-Action Alternative.

Based on the information and analysis presented in the sections on the Affected Environment and the Probable Impacts, this section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decisionmaker and the public.

A unique dimension of this EIS is the formation of the ADG to support the Corps in the drafting of the EIS. The ADG was specifically tasked with the creation and evaluation of the alternatives to be considered and evaluated in this EIS.

Accordingly, the Corps initiated and sought participation for the ADG which consisted of key individuals representing the interests and vision of Southwest Florida. The specific charge of the ADG as offered by the Corps was to:

“Report on alternatives for improving the regulatory process to:

- *protect natural environmental values*
- *provide for sustainable economic growth*
- *manage appropriate changes in water flows and quality*
- *respect public involvement and private rights*

The ADG will collectively develop alternatives, evaluate the merits of each and seek consensus on recommendations” (ADG 1998).

To effectively accommodate the charge and, more importantly, to create alternatives and evaluation factors that will bring added efficiency to the regulatory activities in the future, it was imperative that this be a collaborative effort, drawing upon the perspectives of the key stakeholders in the Southwest Florida. The Corps worked closely with the Lee and Collier County Commissions and others in selecting, from a large number of interested persons, representatives to the ADG. The ADG encompasses a range of backgrounds and interests, offering technical and political perspectives, as well as interests, that are driven by both environmental pursuits and economic development motivations. There was also representation of the general public on the ADG (ADG 1998).

2.1 CONVERSION OF ADG ALTERNATIVES TO EIS ENSEMBLES

For ease of analysis, the alternatives developed by the ADG were combined into Ensembles.

2.1.1 CODING SYSTEM APPLIED TO ADG ALTERNATIVES.

The ADG developed many alternatives. Each alternative map has from three to six legends, each legend defines the geographic areas mapped by the alternative. As described in Chapter VII of the Final Report from the Alternatives Development Group (Appendix D), each legend was then categorized into “families” and “subfamilies.” A “family” is the general land cover that is intended by the legend. A “subfamily” is the review criteria applied to the legend. For example, the legends **Urban**, **Industrial** and **Develop (Compensate off-site for wide ranging species)** all envision that Corps Permits and/or other decisions will result in urban and/or suburban land cover. These legends are assigned to the same “Development” family. However, the **Develop (Compensate off-site...)** legend envisions that the Corps’ Permit decision

will include off-site compensation. This criteria is not explicitly described by the **Urban** legend. Therefore, the two legends are assigned to different subfamilies within the "Development" family. Numerical codes are assigned to ease subsequent analysis. In this example, all three legends are coded family number 100 (Development). The **Urban** and **Industrial** legends are coded subfamily number 110 and the **Develop (Compensate off-site...)** is assigned subfamily number 130. The result is analogous to having a set of building blocks, each piece representing a unique subfamily code. Each of the alternatives can then be depicted as assemblies of these building blocks.

2.1.2 OVERLAY OF ADG ALTERNATIVES

Using this coding scheme, the alternative maps were then overlaid to find which geographic locations were mapped with similar legends. The results are presented by figure VII-1 of the Final Report from the Alternatives Development Group (Appendix D), repeated here as **Figure 3A**. For 67% of the study area, the alternatives mapped the same family. These are the areas with crosshatching. Within any single crosshatch area, however, the alternatives presented different descriptive language or criteria which, as described, were numerically coded as subfamilies. Fundamentally, the alternatives do not vary the land cover type but vary in the review criteria to be applied. For 25% of the study area, the alternatives mapped a combination of two families. For example, in some locations the two families might be Development and Preserve, or Preserve and Agriculture, etc. These are the areas in gray. For the remaining 8% of the study area, shown in white, the alternatives map more than two families.

2.1.3 IDENTIFYING THE OPTIONS

The goal of this EIS is to present the optional land cover types and review criteria for the gray areas in the overlay map. These options are presented by five "Ensembles." Each "Ensemble" comprises four of the twenty nine alternatives created by the ADG. The ADG subdivided the study area into four pieces (called "Zoom A", "Zoom B" or "The Hub", "Zoom C", and "Zoom D") and created several alternatives for each. Each Ensemble selects one alternative from Zoom A, one from Zoom B, one from Zoom C, and one from Zoom D so that the Ensemble covers the entire study area. Alternatives with similar characteristics were placed in the same Ensemble. For example, Ensemble R consists of the alternative in Zooms A that represents the Lee County Comprehensive Plan, the alternatives each from Zoom B, C, and D that represent the Lee County and Collier County Comprehensive Plans. The other Ensembles were assembled based on a combination of: the similarity in the proportion of acreages mapped for land cover types (assisted by the family coding system, for example: alternatives within each Zoom that map the largest number of acres for the Development family are placed in Ensemble Q); the similarity of the legends (assisted by the subfamily coding system, for example, the alternatives within each Zoom that describe similar criteria to maintain the low density mix of uses within the Rural family are placed in Ensemble S); and the similarity of the individual alternative maps when joined to their neighbors.

2.1.4 ALTERNATIVES ELIMINATED FROM EVALUATION

Not every alternative was placed into an Ensemble because there are not an even number of alternatives and the result would be a large number of Ensembles with many duplicate features. The subfamily coding system was used to ensure that all criteria found in the entire set of alternatives were represented in the Ensembles. For example, one of the alternatives not assembled into an Ensemble describes criteria for Golden Gate Estates, but those criteria are found in Ensemble S because the criteria were also used by another alternative. Therefore, none of the features in the alternatives are eliminated.

2.1.5 USE OF ENSEMBLES

The evaluations in this EIS are presented using five Ensembles. As described above, a numeric coding system was used to ease the preparation of a suite of Ensembles that represented the range of options. Hereafter, the term "land cover types" will be used instead of "family" code and the term "review criteria" will be used instead of the "subfamily" code. The Ensembles are labeled Q, R, S, T, and U.

2.2 IMPLEMENTATION

This EIS will not identify a preferred alternative. The Ensembles presented by this EIS describe several "futures" that might result from a combination of actions by many landowners and, for those subset of projects that involve fill in wetlands, actions by the Corps. A landowner submits an application to the Corps requesting authorization to place fill in wetlands in order to construct some project on some parcel of land. The Corps considers the characteristics of the parcel and the benefits and impacts ascribed to the proposed project to decide whether or not to issue a Department of the Army Permit (Permit). The Permit, if issued, authorizes the placement of fill. The parcel's "land cover type" changes from wetland to something else (for example, residential). For any single parcel that includes wetlands, a prediction of the future (say twenty years) land cover type depends on the combination of (1) whether the landowner proposes to fill the wetlands and (2) what the Corps decides after considering the project specific information. All of the landowners in the study area could possibly construct all of their projects in such a way that would result in a land cover type map that exactly matches Ensemble R. However, it is not unlikely that some of the landowners in the study area will construct projects that do not match Ensemble R. These differences could be reflected in the different maps of Ensembles Q, S, T and U. In addition, for the portion of the total set of projects that involve wetland fill, the landowners' applications and the Corps' permit decisions may not exactly match any one particular Ensemble. The Ensembles do not represent all the possible combinations of projects and permits but are representing a range of possibilities. Each Ensemble represents the cumulative total of all the projects, including the subset of those with permit decisions rendered by the Corps. The accompanying evaluation of those Ensembles present the cumulative total benefits and impacts. Along with an evaluation of direct impacts, the Corps will, as part of the decision for an individual application, consider the proposed project's incremental contribution to the cumulative total. The decision will give appropriate weight to the cumulative and appropriate weight to the individual impact or benefits of the proposed project. The remainder of this section describes how the Corps could use this information to improve its reviews.

2.2.1 USE OF THE "OVERLAY OF ALTERNATIVES" MAP

The Ensembles propose the same land cover type for 67% of the study area. For example, the alternatives created by the ADG variously use legends such as "urban," "industrial" or "development" on 14% of the study area to indicate that the land cover will be commercial, retail, residential and other types of urban or suburban development. These areas of similarity are mapped with cross-hatching on **Figure 3A**. The remaining cross-hatching represents development within the Lehigh Acres, Golden Gate Estates, and rural areas (8.8%), agricultural areas (5.4%) and preservation areas (38.8%). (This figure is also found in Chapter VII of the Final Report from the Alternatives Development Group.) Therefore, if a landowner submits an application for some type of urban or suburban development within the cross-hatched 14% of the study area, the Corps could decide, as a result of this EIS, that its permit reviewers need not spend extensive time on questioning whether the development should be located elsewhere, for example, preparation of an analysis of alternative geographic locations for the project. The Corps decision to implement such a change in its permit reviews will, if a change is made, be presented in the Record of Decision after the completion of this EIS. Then, in the subsequent permit reviews, the Corps will incorporate by reference this EIS in the environmental assessment supporting the permit decision. The benefits of such a change would include: increased certainty for the landowner submitting the application; increased efficiency by reducing the permit review time; and increased effectiveness in that hours the Corps staff would have spent on this question can now be spent addressing natural resource concerns on other applications.

2.2.1.1 Sixty-Seven Percent of Overlay Map

Within the 67% crosshatched area, the Corps still will review certain details of the development's design to understand the impacts and benefits to various issues as required under Federal Law. Most Ensembles associate its legends with new review criteria. For example, Ensemble R (that represents the Comprehensive Plan) associates the "development" legend with the policies and procedures that implement the Comprehensive Plan. Other Ensembles use the "development" legend but associate additional criteria beyond those in the Comprehensive Plan. These five Ensembles present a variety of review criteria. The reviewers will ask the applicant questions based on the review criteria. The Corps will pick and choose criteria from several of the Ensembles and, with refinement, implement the final set in the review of permit applications. The Corps will present its decision to implement such a change in its permit application reviews in the Record of Decision after the completion of this EIS. The benefits of such a change will include: increased certainty over which issues will be reviewed; increased applicant efficiency through knowing up front what the issues are; and, increased effectiveness since there will be less likelihood an issue would be overlooked in the press of review. The Corps could also decide, after the EIS is completed, to further refine some of the criteria and issue a public notice proposing a Regional General Permit for certain activities in certain portions of the study area.

2.2.1.2 Thirty-Three Percent of Overlay Map

For the remaining 33% crosshatched portion of the study area, the Ensembles do not agree on the land cover types. For 25% of the study area, the difference is between two land cover types, for example, one Ensemble maps "preserve" and the others "development." This 25% is shown in gray on **Figure 3A**. For the remaining 8%, shown in white on **Figure 3A**, there are three or more land cover types mapped.

2.2.1.3 Twenty-Five Percent of Overlay Map

For the 25% (gray) area, the fundamental disagreement is on the appropriate geographic boundary between two adjacent land cover types, and commonly this is between "preserve" and some other land cover type. The quantity and location of native vegetation that is or is not preserved influenced many of the evaluation factors (presented in Chapter 4), particularly those related to wildlife. The Corps could decide, as a result of this EIS, that its permit reviewers will assess the direct cumulative effect on wildlife through assessments of impacts to native vegetation preserved. (This would not necessarily be the only measurement for effects on wildlife.) The Corps decision to implement this measurement will be presented in the Record of Decision after the completion of this EIS. The benefits of such a measurement will include: increased certainty for the "yardstick" to be used; increased efficiency (after several projects) since the measure will become familiar to reviewers; and increased effectiveness since there will be an opportunity to track certain evaluation factors for management review. The Corps recognizes that some of the evaluation factors as used in Chapter 4 rely on best professional judgment, but they do provide clear acknowledgment and some indication of the order of magnitude of the cumulative benefit or impact from Corps permit decisions.

2.2.1.4 Eight Percent of Overlay Map

For the 8% (white) area, review of permit applications will be challenging. The evaluations in this EIS ascribe benefits to the local economy from expansion of development but the evaluations also show serious incremental impacts to natural resources. There is not a defined "threshold" number of acres of preserve or development where unequivocally a certain number of these acres are considered to be the ideal balance between natural resources and economic development. This EIS presents multiple evaluation factors and expresses each as relatively simple indices (such as percent of study area) that could be used to compare the many benefits and impacts.

2.2.2 THE "PROJECT REVIEW CRITERIA"

The above concepts will be applied to day-to-day permitting through a document called the Project Review Criteria. This document consists of permit review criteria that are keyed to a map of land cover types (Project Review Map). These land cover types are the same as those mapped in **Figure 3A** for the 67% (crosshatched) portion of the study area. The Project Review Criteria are independent of the Comprehensive Plan. For example, the landowner would present a proposed project to either Collier County or Lee County. The County's review is based on the policies and criteria described in the County's Comprehensive Plan and other implementing ordinances, some of which (such as density) are keyed to the Future Land Use Map. Both Collier County and Lee County require that appropriate State and Federal permits be obtained either before issuance of the County development order or commencement of construction. If the proposed project involves fill in wetlands, the landowner also submits a permit application to the State under the joint application process with the Corps. The Corps' review is based on the policies published in the Code of Federal Regulations including the Guidelines for Specification of Disposal Sites for Dredged or Fill Material (404(b)(1) Guidelines) issued by the U.S. Environmental Protection Agency under Section 404(b)(1), 40CFR230. The Project Review Criteria and associated Project Review Map has been developed consistent with the 404(b)(1) Guidelines, particularly Subpart B. The Project Review Criteria acting in concert with the Comprehensive Plan, will assist all levels of government to support the Clean Water Act and Endangered Species Act. The draft of the Project Review Criteria and associated Project Review Map is found at Appendix H. If a proposed project is in an area mapped with the development land cover type, then the development subset of the Project Review Criteria is used. For 67% of the study area the land cover types in the map for the Selected Review Criteria match the land cover types of all of the other alternatives created by the ADG and the County Comprehensive Plans (these are the cross-hatched areas of the "Overlay of Alternatives" map). For the remaining portion of the study area (the gray and white areas of the "Overlay of Alternatives" map), the Federal agencies considered the choices presented by the Ensembles and selected land cover types that appear to most effectively protect the Federal interest. The draft list of criteria and the associated map are based on Ensemble S, but the Federal agencies deleted some pieces, selected some pieces from other alternatives, and added clarifying language and formatting.

2.2.3 ADDITIONAL ANALYSIS.

The evaluation factors used to analyze the effects presented in this EIS are not elaborate. Their purpose is to present the differences between the Ensembles. They are incorporated into the Draft Permit Review Criteria to ensure this information is used in review of permit applications. The Corps recognizes that this EIS represents just one step in the development of an appropriate analysis that can appropriately describe the many ecological relationships and other issues across the landscape. The Corps is committed to, after the publication of this Draft EIS, working with the U.S. Fish and Wildlife Service and other agencies to develop more detailed analysis tools to be ultimately incorporated into the Corps' decision processes. For example, there are fairly specific guidelines for protection of bald eagle nests from construction and other activities in the vicinity of the nest. There is no similar document (with such specificity) for many of the other evaluation factors. Once the detailed analysis tools are available to be used in project development and design, then these can be applied not only to review of applications but also to a re-evaluation of the predicted total change in the landscape to determine whether, and to what extent, there are adverse effects as defined by the Endangered Species Act.

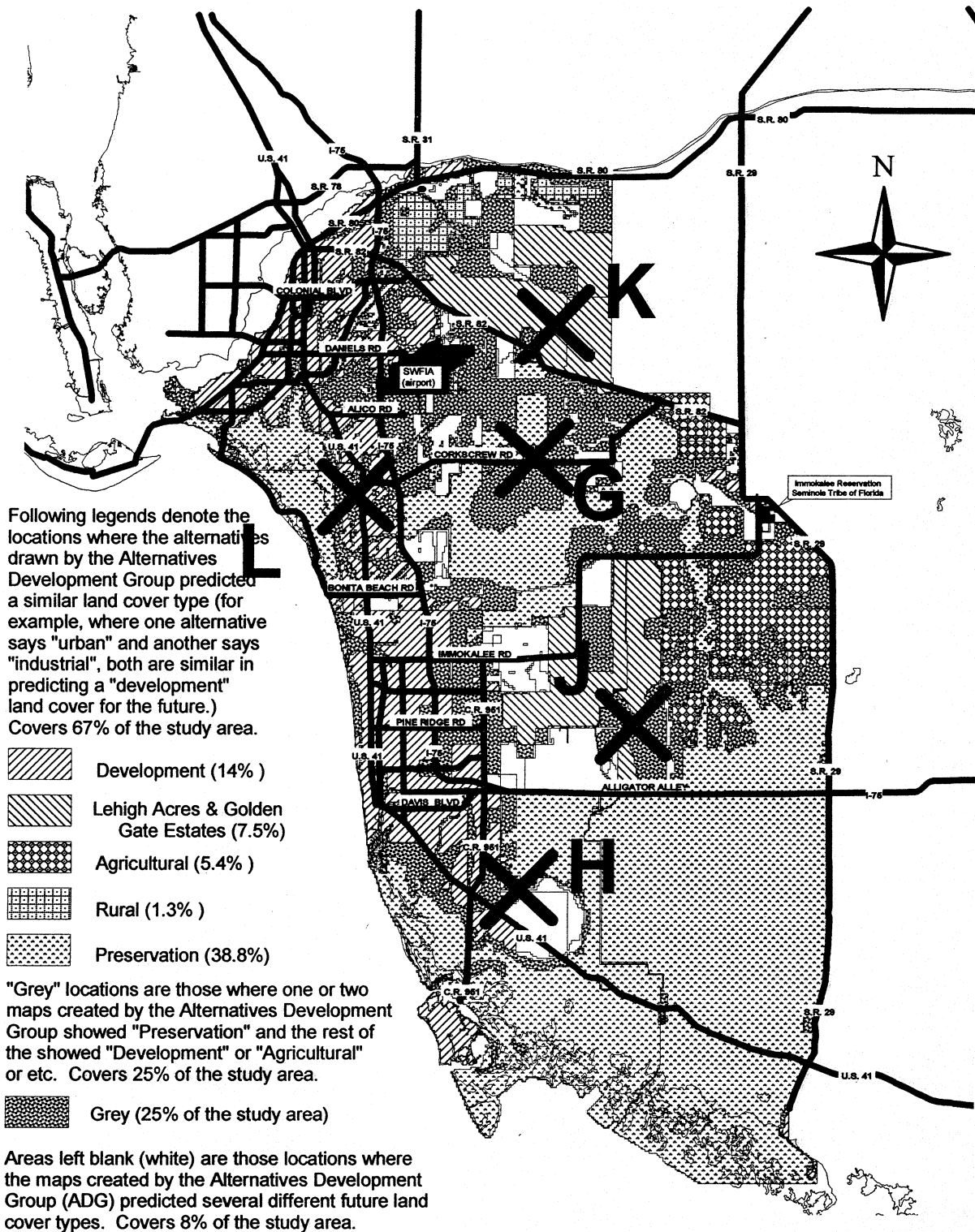
2.2.4 PRESUMPTION

An application that does not address the listed criteria or proposes a land cover type different from the map will initially be presumed to be contrary to the Federal interest. This does not imply that the Corps permit will "automatically" be denied. This presumption will be either rebutted or confirmed based on project specific information during the individual application review. The Project Review Criteria is to assist the reviewer and landowner to determine the individual project contribution to the cumulative effects (including direct, indirect, and interrelated impacts) on the ecosystem. The Corps is not establishing a

threshold acreage or location for any of the land cover types, but will use the quantities and geographic descriptions in the criteria (based on the associated map) to better understand the various impacts and benefits resulting from the proposed project.

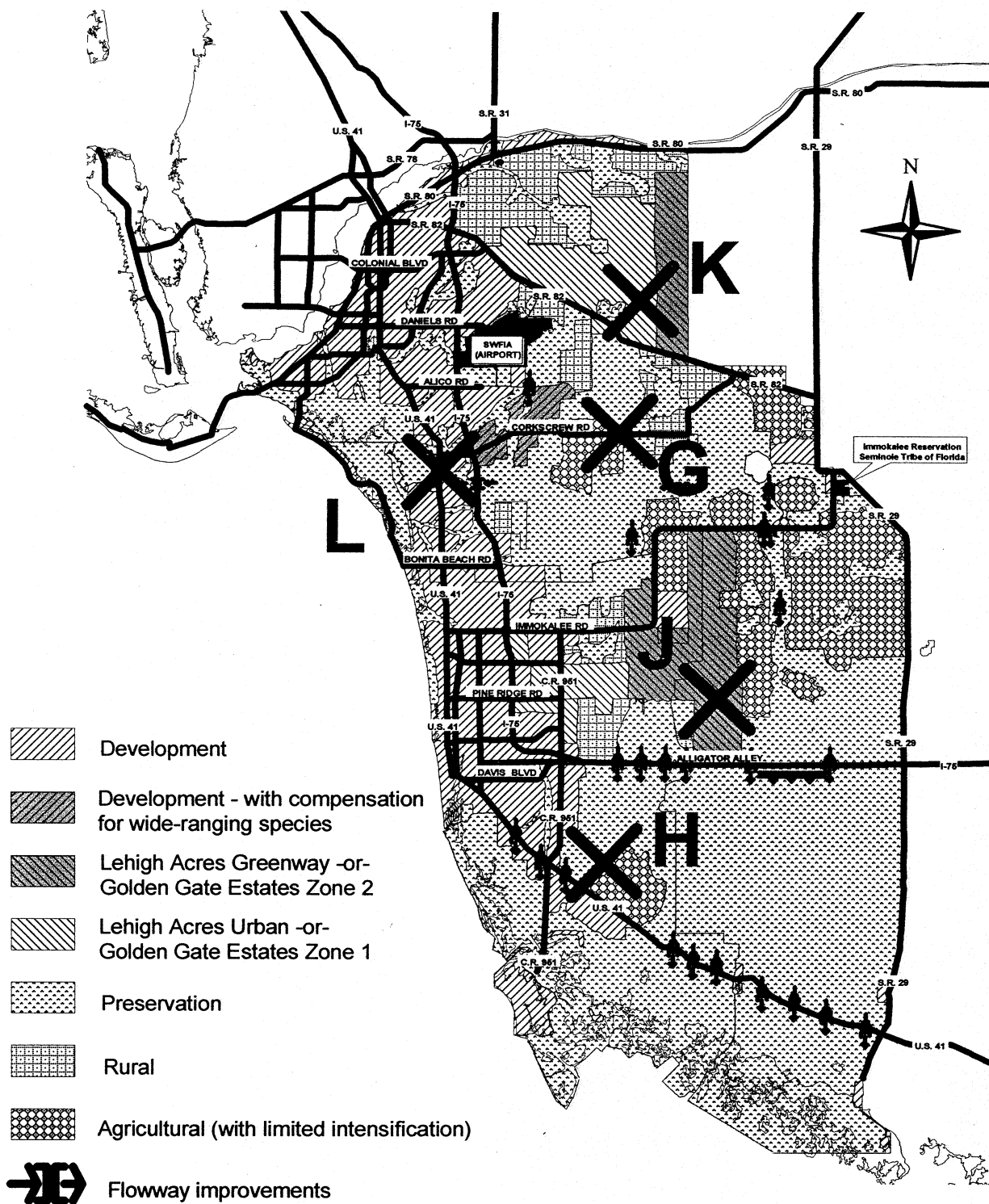
2.2.5 ILLUSTRATIONS

Several hypothetical applications follow that illustrate the use of the two maps. The project sites are marked on **Figures 3B** and **3C**.



OVERLAY OF ALTERNATIVES

FIGURE 3B. SITE LOCATIONS FOR ILLUSTRATIONS ON OVERLAY MAP



PROJECT REVIEW MAP

FIGURE 3C. SITE LOCATIONS FOR ILLUSTRATIONS ON PROJECT REVIEW MAP

2.2.5.1 Illustration "G"

The landowner for site "G" proposes to clear and fill wetlands to construct canals and dikes for agriculture. Some alternatives map this location as agriculture, some as preserve. This is part of the 25% of the study area that is "gray." The Project Review Map shows Preserve. The reviewer will use the subset of criteria listed under Preserve to ask questions of the applicant. One of the proposed criteria questions whether native vegetation is preserved to provide habitat connection between the Corkscrew Regional Ecosystem Watershed (CREW) and other areas. This question is included in the list of criteria because the Ensembles present varying number of connections, that is, one Ensemble maintains a large number of connections and others show the cumulative result of potential permit decisions to sever connections. Several of the evaluation factors were influenced by the change in the presence of connections, particularly those related to wildlife and to public lands. If these criteria are adopted, an application that proposes to sever the connection between the CREW and the adjacent publicly owned preserve will be presumed, unless rebutted, to be contrary to the Federal interest due to the incremental adverse impact to the wildlife and public land factors. Another of the proposed criteria questions whether habitat is maintained for the Florida panther. This question is included in the list because the Ensembles present different percentages of the panther habitat remaining within contiguous preserves. The evaluation factor for the Florida panther reported beneficial effects of maintaining habitat in contiguous preserves. If this criteria is adopted, an application that proposes to eliminate panther habitat will be presumed, unless rebutted, to be contrary to the Federal interest due to the incremental loss of contiguous preserve. These two measurements (presence of connection and presence of panther habitat) would be used when the cumulative effect of the proposed project is assessed. The evaluation measurements can also be used by the landowner when designing the footprint of the project. If the site is proposed for a mitigation bank, these same evaluation factor measurements could be used to calculate the benefits of the proposal.

2.2.5.2 Illustration "L"

The landowner for site "L" proposes to clear and fill wetlands to construct infrastructure for a residential development. All alternatives map this location for development but some map a wide preserve on either shore of the river. This is part of the 67% of the study area that is cross-hatched. The Project Review Map shows this part of Lee County as development and show preserves along the waterways. The reviewer will use the subset of criteria listed under Development to ask questions of the applicant. One of the proposed criteria questions whether adequate buffer zones are provided to streams. This question is included in the list of criteria because the Ensembles present varying width of flowways; that is, some Ensembles describe or map wide buffer zones around streams. Several of the evaluation factors were influenced by the width or presence of flowways, including those related to water management. If this criteria are adopted, an application proposing a wide buffer will be presumed, unless rebutted, not to be contrary to the Federal interest. Another one of the criteria questions whether a buffer is provided for Bald eagle nests. The evaluation factor for this species was influenced by the presence of contiguous preserve in conjunction with buffering the nest. If this criteria is adopted, an application that does not maintain bald eagle buffers preserve will be presumed to be contrary to the Federal Interest.

2.2.5.3 Illustration "J"

The landowner for site "J" proposes to clear and fill wetlands to construct a home. Some of the Ensembles map this location as residential development of this nature and other Ensembles map the remnant of the Picayune Strand as preserve. This is within the 25% of the study area that is "gray." The Project Review Map shows this as Golden Gate Estates Zone 2. The reviewer will use subset of criteria listed under Golden Gate Estates to ask questions of the applicant. One of the criteria questions whether the clearing of native vegetation exceeds a certain amount. This question is included in the list of criteria because the Ensembles by map or criteria present a range in the quantity of vegetation preserved. Some of the evaluation factors were influenced by the quantity of native vegetation, particularly those related to wildlife. If this criteria is adopted, an application that proposes to clear the entire site will be presumed, unless rebutted, to be contrary to the Federal interest due to the incremental impact to the wildlife factors.

2.2.5.4 Illustration "K"

The landowner for site "K" proposes to clear and fill wetlands to construct a home. All of the Ensembles map this location for residential development and therefore it is part of the 67% of the study area that is cross-hatched. The Project Review Map shows this as Lehigh Acres. The reviewer will use the subset of criteria listed under Lehigh Acres to ask questions of the applicant. One of the proposed criteria questions whether seasonal wetlands and their interconnections are maintained. This question is included in the list of criteria because the Ensembles present different percentages of the number of seasonal wetlands remaining within contiguous preserves (with the remaining seasonal wetlands either authorized for fill or surrounded by development). Several of the evaluation factors for wading birds in general and Wood storks in particular were influenced by the quantity remaining in contiguous preserves. Preserving these wetlands in a contiguous preserve was considered beneficial. This site is within the foraging range of some wading bird rookeries. If this criteria is adopted, an application that proposes to degrade or sever connections between the seasonal wetlands will be presumed, unless rebutted, to be contrary to the Federal interest due to its impact to the wading bird evaluation factor. Another proposed criteria questions whether Scrub jay families are protected. This question is included in the list of criteria because the Ensembles present varying levels of protection for Scrub jay families. The evaluation factor for this species was influenced by the presence of contiguous preserve in conjunction with the family. If this criteria is adopted, an application that does not maintain a wide or contiguous preserve will be presumed to be contrary to the Federal Interest. The Lehigh Acres subset of the Project Review Criteria also list criteria that encourage modification of the water management system. This encouragement is included in the list because some of the Ensembles included these modifications. Some of the evaluation factors, particularly for water quality, indicate that benefits to the natural resources would result. The Corps would not implement this modification but would use the information in this EIS, among other sources, if a landowner proposed such a modification. These ideas, and others presented throughout the Ensembles, may warrant further consideration in future studies.

2.2.5.5 Illustration "H"

The landowner for site "H" proposes to clear and fill wetlands to construct a residential development. One of the Ensembles maps this location for residential development but others map it as agriculture or preserve. This area is within the 8.4% of the study area that is shown as "white". The Project Review Map shows this as Agriculture. The reviewer will use the subset of criteria listed under Agriculture to ask questions of the applicant. One of the proposed criteria questions whether a "strict" alternative analysis has been performed by the applicant under the Guidelines issued by the U.S. Environmental Protection Agency under Section 404(b)(1) of the Clean Water Act. An alternative analysis seeks, among other things, to identify another site with less impact to the ecosystem. This question is included because the Ensembles present different extents of development and agriculture. Many evaluation factors were influenced by an increase in the area of development and/or decrease in the area of agriculture. For several factors, this change was not beneficial to natural resources. The Project Review Criteria in this instance "errs on the side of the natural resources" by requiring an elaborate geographic and site design alternative analysis if the proposed land use is different from the land cover type mapped. If this criteria is adopted, an application that proposes a land cover type to something other than agriculture will be presumed, unless rebutted by the elaborate alternative analysis, to be contrary to the Federal interest. The alternative analysis would use, among other things, some of the evaluation factor measurements described in this EIS and the Project Review Criteria to assess the impact to natural resources of alternative geographic site or site plans.

2.2.6 Result

The Corps will remain cognizant of the direct and cumulative impacts of an individual permit decision by using the Project Review Criteria, associated Project Review Map, and the evaluations presented by the Ensembles. Potential cumulative impacts will influence the individual permit decision. The Ensembles and the Project Review Criteria are not maps of where permits will or will not be issued. This EIS does not replace consideration of individual circumstances unique to the site. In addition, others beside the

Corps are encouraged to use this document since it represents visions presented by representatives of the community.

2.3 DESCRIPTION OF ENSEMBLES.

2.3.1 ALTERNATIVES CONSIDERED

As detailed in the previous section, the Corps developed five of alternative "Ensembles" in an effort to streamline the presentation of the mass of information from the many alternatives developed by the ADG (Appendix D). **Table 1** shows the relationship between the Ensembles and the alternatives developed by the ADG. **Table 2** provides the expected land use acreages within the study area for each of the Ensembles. These Ensembles differ in their specific levels of preservation and protection of resources, as well as the development potential (see **Figure 4** comparing the expected land use distribution under the various Ensembles, and **Figures 5 through 9** which are maps depicting typical land use patterns expected under the various Ensembles).

**TABLE 1: RELATIONSHIP BETWEEN THE ALTERNATIVE ENSEMBLES
AND THE 28 ADG ALTERNATIVES (zoom = sub-area)**

| Ensemble ↓ Zoom→ | ADG Alternatives | | | |
|-----------------------------|-------------------------|------------|------------|------------|
| | A | B | C | D |
| Q | 4 | 4A | 4 | 4 |
| R | Status Quo | Status Quo | Status Quo | Status Quo |
| S | 2 | 2A | 2 | 2 |
| T | 3A | 2B | 3A | 3 |
| U | 5 | 3B | 1A | 1A |

**TABLE 2: EXPECTED LAND USE FOR SOUTHWEST FLORIDA STUDY AREA
FOR ALTERNATIVE ENSEMBLES (IN THOUSANDS OF ACRES)**

| EXPECTED LAND USE | Q | R | S | T | U |
|---|------------|------------|------------|------------|------------|
| Lehigh (re-development) ¹ | 46 | 0 | 0 | 0 | 0 |
| Lehigh (water storage area) ² | 10 | 0 | 0 | 0 | 0 |
| Lehigh Acres (zone limitations) ³ | 0 | 0 | 36 | 0 | 0 |
| Lehigh (restore/fix) ⁴ | 0 | 0 | 0 | 34 | 0 |
| Lehigh (restore/fix & zone limitations) | 0 | 0 | 0 | 0 | 34 |
| Lehigh (greenway) | 0 | 0 | 15 | 0 | 0 |
| Golden Gate (development criteria) ⁵ | 0 | 0 | 55 | 51 | 54 |
| Other Development | 346 | 363 | 213 | 253 | 223 |
| TOTAL DEVELOPMENT | 404 | 363 | 320 | 339 | 312 |
| Agriculture (end go preserve) ⁶ | 0 | 0 | 0 | 54 | 0 |
| Agriculture (limited intensity) ⁷ | 0 | 0 | 97 | 0 | 0 |
| Agriculture (zone limitations) | 0 | 0 | 0 | 0 | 28 |
| Rural (low density) ⁸ | 0 | 0 | 61 | 0 | 0 |
| Other Agriculture/Mining | 140 | 181 | 0 | 77 | 124 |
| TOTAL AGRICULTURE & MINING | 140 | 181 | 158 | 130 | 152 |
| PRESERVATION⁹ | 447 | 468 | 518 | 518 | 532 |
| Undecided | 5 | 0 | 0 | 8 | 0 |
| GRAND TOTAL | 996 | 995 | 996 | 995 | 996 |

¹ re-development = redistribute/reassign densities and cluster people to central area of Lehigh Acres

² water storage area = part of re-development, regional water storage facility near Harnes Marsh

³ zone limitations = limitations to activities in certain specified areas or zones to protect natural resources

⁴ restore/fix = acquire, restore, & fix, then place in preservation status

⁵ development criteria = allow planned development meeting development criteria: zone 1 limitations = avoid, minimize, and mitigate wetland impacts and address protected species impacts; zone 2 limitations = limited fill, not impede sheet flow, and eliminate exotics plus zone 1 criteria

⁶ end go preserve = abandoned agriculture goes to preserve and does not convert to development

⁷ limited intensity = no changes that require additional loss of natural habitat

⁸ low density = low density rural development such as ranchettes and plant growing nurseries (single family)

⁹ preservation = areas that now or will soon be owned by government or private entities to protect natural resources

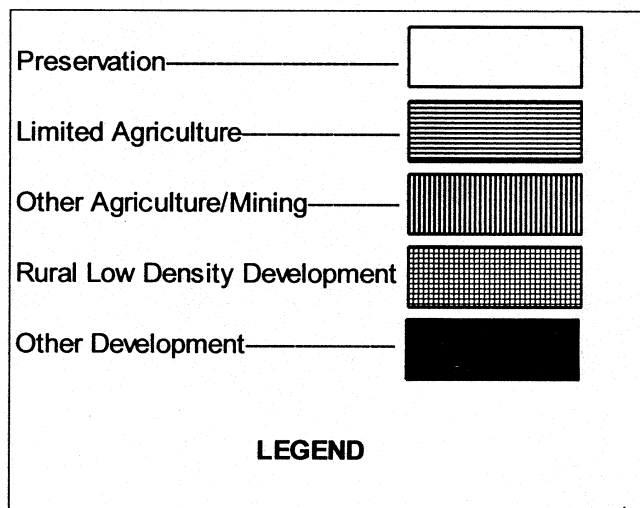
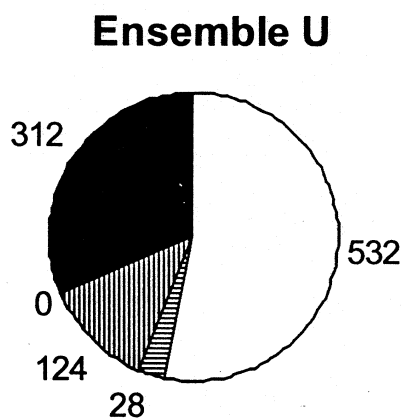
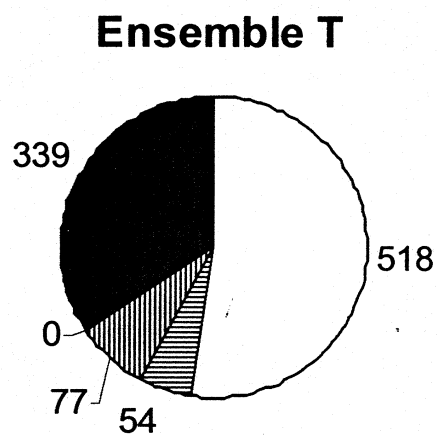
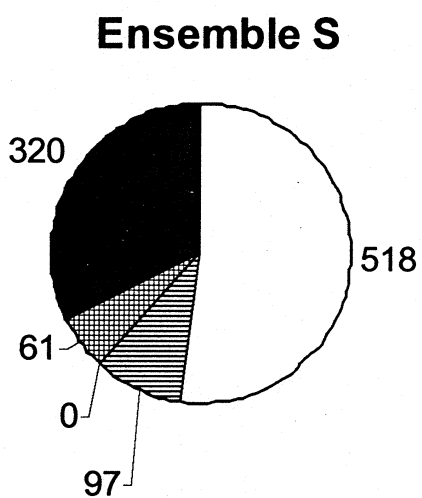
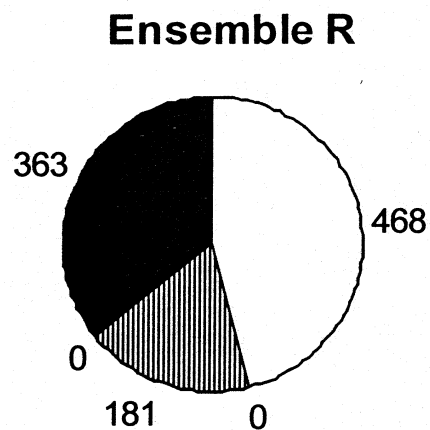
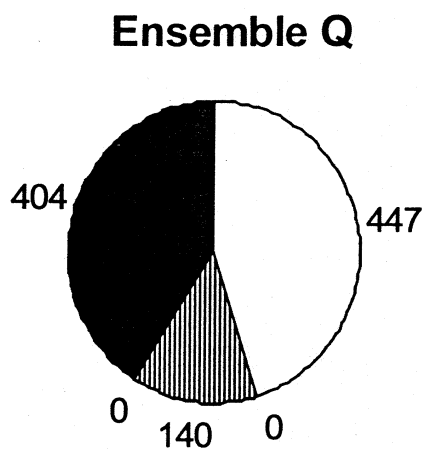
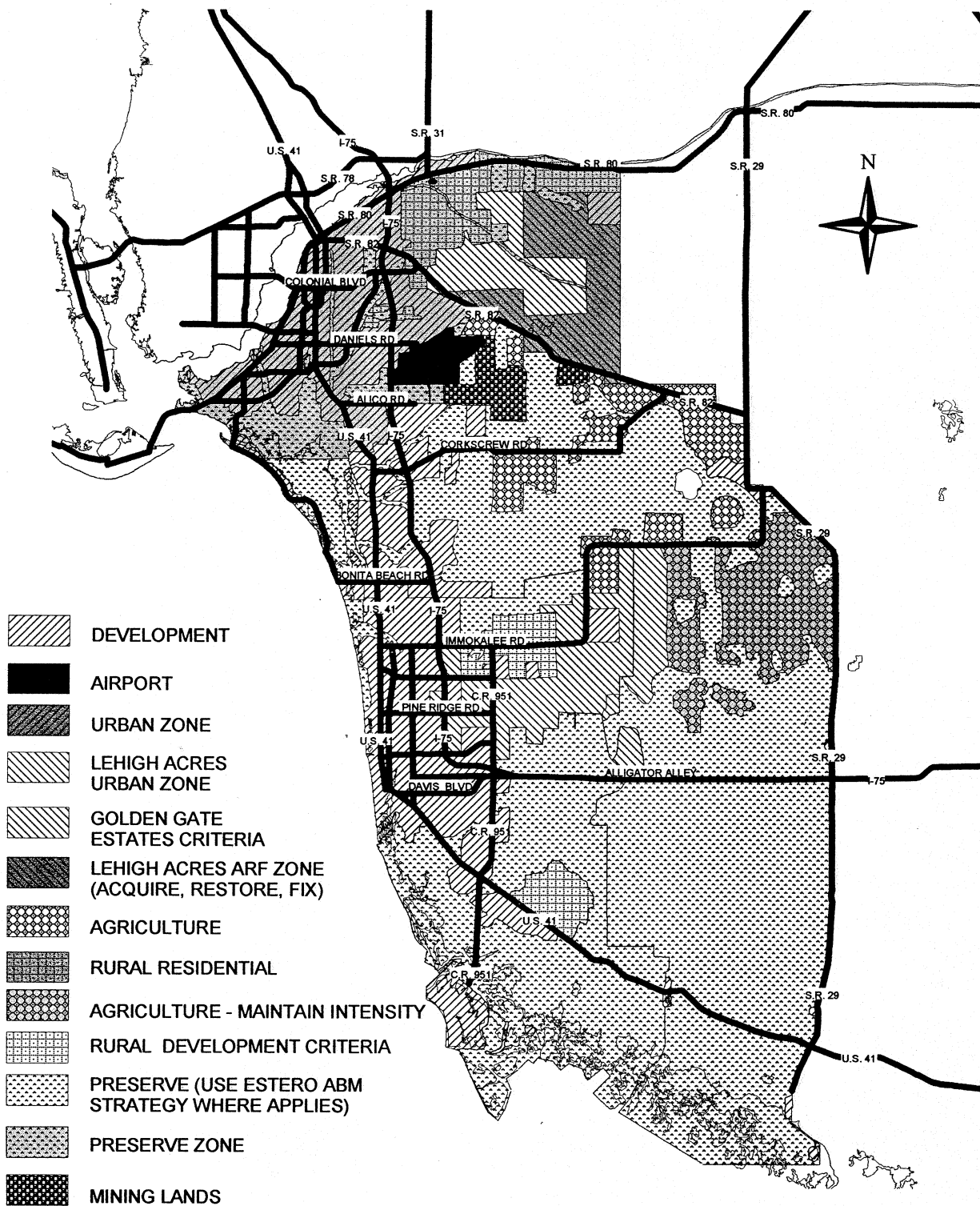


FIGURE 4. COMPARISON OF EXPECTED LAND USE UNDER THE ALTERNATIVE ENSEMBLES



ENSEMBLE U

INSERT FIGURE 9. ENSEMBLE U

2.3.2 ENSEMBLE Q

This grouping of alternatives builds on the Comprehensive Plans and provides a larger acreage of development than the comprehensive plan. The Ensemble also suggests the establishment of new flowways or restoration of historic flowways. The alternatives used to assemble this Ensemble are: Zoom A, Alternative 4; Zoom B, Alternative 4A; Zoom C, Alternative 4; and Zoom D, Alternative 4.

2.3.2.1 Legend: Development Within the Urban areas, flowways improvements were shown in various locations and connected to the Preservation areas. Some of these are as described in the South Lee Watershed Plan presented by the South Florida Water Management District. The western end of Golden Gate Estates was included in the Urban designation. An increase in density within Golden Gate City is also proposed.

2.3.2.2 Legend: Development (Transition) Those lands currently in agriculture that will likely change to the Urban designation.

2.3.2.3 Legend: Lehigh Redevelopment Suggests Lee County should consider redevelopment alternatives, particularly for the Greenbriar Area, to restore flowways.

2.3.2.4 Legend: Lehigh Water Storage An area in southeast Lehigh Acres was identified as potential use for water storage.

2.3.2.5 Legend: Agriculture The definition for Agriculture is the same as the Comprehensive Plan.

2.3.2.6 Legend: Rural The definition is the same as the Comprehensive Plan.

2.3.2.7 Legend: Golden Gate Estates The remainder of Golden Gate Estates would retain the same Rural Residential designation as found in the Comprehensive Plan.

2.3.2.8 Legend: Preserve Flowways are proposed through the urbanized areas and, within Preservation Lands, removal or culverting of various roads to restore flowways, for example, culverts under I-75 and Tamiami Trail to improve sheetflow of surface waters. Preservation Lands include lands surrounding Ten Mile Canal and certain flowways leading to Six Mile Cypress Slough and others leading to the Caloosahatchee River. Of the Ensembles, this one proposes the narrowest footprint for Preservation Lands within Camp Keais Strand, restricting it to areas not currently under agriculture, but proposes culverts in the Strand to improve flows.

2.3.2.9 Legend: Mining Lands Mining lands are shown separate from Agriculture.

2.3.2.10 Legend: Pending Review Two areas are designated Pending Review as the group preparing the alternative could not agree whether to designate the location as development or preservation.

2.3.3 ENSEMBLE R

This grouping of alternatives represents the “status quo” and incorporates the Lee County and Collier County Comprehensive Plans, including the implementing policies and procedures for approval of projects. The alternatives used to assemble this Ensemble: Zoom A, Alternative 1; Zoom B, Alternative 1; Zoom C, Alternative 1; Zoom D, Alternative 1.

2.3.3.1 Lee County Comprehensive Plan (Ordinance 89-02 with amendments)
Chapter II (Future Land Use) of the Lee County Comprehensive Plan states the first goal is “To maintain and enforce a Future Land Use Map showing the proposed distribution, location, and extent of future land uses by type, density, and intensity...” Under this first goal are listed approximately 22 categories. Other goals in this chapter and other chapters in the Ordinance provide specific policies for evaluation of proposed development designs or rezoning. Chapter XIII (Procedures and Administration) states “...all development and all actions taken in regard to development orders shall be consistent with the plan...” The Ordinance also provides for a Year 2010 Overlay which divides the County into 105 sub-districts. Within each district is assigned an acreage for each land designation within that district. The number of acres are those proposed for the year 2010. No development orders will be issued which exceed these acreage numbers. This overlay is being replaced by a Year 2020 Overlay which divides Lee County into 20 Planning Communities. Therefore, the Future Land Use Map shows “build-out” acres for each designation, but the acres projected for the year 2020 will be something less. The Ordinance itself states “With the exception of Cape Coral and Lehigh Acres, the County’s urban areas will be built out by 2020.” Due to the difficulty of mapping these 2020 projections, the alternative was created using the “build-out” map. It appears the evaluations were generally performed using “build-out” although at least one sub-group discussed the 2020 overlays while preparing their evaluations.

2.3.3.2 Collier County Future Land Use Element of the Growth Management Plan (Ordinance 97-67) The Collier County Ordinance states the goal is “To guide land use decision-making...” and provides several objectives and policies. The ordinance also defines approximately twelve land use designations that “...generally indicate the types of land uses for which zoning may be requested.” For each designation, the ordinance describes the uses and standards to be applied and shows the properties affected on the Future Land Use Map. Note that Ordinance 97-67 is the amendment of the current Future Land Use Element and is not in effect (as of May 11, 1998) while concerns raised by the Florida Department of Community Affairs(DCA) are resolved. The Land Development Code (Ordinance 91-102) implements applicable portions of the Growth Management Plan. Article 2, Zoning, includes, among other things, a requirement for open space and for special requirements in areas of environmental sensitivity designated as Special Treatment Overlay District. Article 3, Development Requirements, includes, among other things, a requirement for an Environmental Impact Statement for certain projects, and various requirements for protection of natural vegetation and endangered species.

2.3.3.3 Land Use Legends The Ensemble uses five land use legends: Agricultural; Industrial; Preserve; Rural; and Urban. The Lee County Future Land Use Map shows 22 land use designations and the Collier County Future Land Use Map shows 12. These 34 designations were collapsed into five simply to ease the preparation of other alternatives and for convenience in evaluation. Agricultural represents Density Reduction/Groundwater Resource (Lee) and Agricultural/Rural Mixed (Collier). Industrial represents Industrial Development, Industrial Interchange, Industrial Resource (Lee) and Industrial District (Collier). Preserve represents Wetlands, portions of Density Reduction Groundwater Resource (Lee), and Agricultural/Rural Mixed Use District (Collier) that currently are or are proposed to be preserved and managed to maintain natural resource values. Rural represents Rural, Rural Community (Lee), Estates Designation, and Rural Settlement Area District (Collier). Urban represents Central Urban, Suburban, Outlying Suburban, Urban Community, University Community, the various Interstate Highway Interchange areas (except for the Industrial and the Industrial Commercial types), Public Facilities (other than certain parks that were placed in the preserve legend). New Community, and the various Airport areas (Lee), Urban and Commercial sub-districts under the Urban Designation (except for the Industrial District), Urban Residential Sub-district, and Mixed Use Activity Center Sub-District (Collier).

2.3.4 ENSEMBLE S

This grouping of alternatives represents the ensemble that provides greater emphasis on listed species and their habitat, particularly wide-ranging species such as the Florida panther and the Florida black bear. Other foci of this ensemble are restrictions on the clearing of native vegetation, preservation and restoration of habitat corridors and flowways, and increased regulatory and public awareness of the presence and extent of sensitive resources. The alternatives used to assemble this Ensemble are: Zoom A, Alternative 2; Zoom B, Alternative 2A; Zoom C, Alternative 2; and Zoom D, Alternative 2A. In some cases, some particular criteria was proposed for one alternative, but not explicitly repeated in others. Therefore some of the narratives below note to which portion of the study area the criteria applies to (each portion labeled either Zoom A, B, C, or D).

2.3.4.1 Legend: Development Within Zoom A, flowway improvements are proposed. Within Zoom C, the Ensemble proposes encouraging planting of emergent and shoreline planting in stormwater retention lakes and continuation of the Corps standards for wetland protection. The alternative also adopts what are called "Urban Zone" criteria that requires project designs will: restore flowways; retrofit residential septic systems and package treatment plants; provide adequate hurricane shelters and evacuation times; restore or retrofit buffer zones around wetlands, flowways, natural streams, rivers and creeks; and, meet Pollution Load Reduction Goals when set.

2.3.4.2 Legend: Development - Compensate for Wide Ranging Species An area is mapped for Development with a requirement for off-site compensatory mitigation for wide-ranging species.

2.3.4.3 Legends: Lehigh Acres Zone and Lehigh Acres Greenway Allows development but proposes criteria that includes: identify existing wetlands, location of historic flowways, and potential water storage areas (per pre-Townsend Canal); identify development concentrations; identify xeric oak scrubs; transfer development rights from important resource areas (existing wetlands, xeric scrub) to development clusters; redistribute/reassign densities for a more balanced community that includes an appropriate mix of uses (i.e., mix of single-family, multifamily, etc.); geographically cluster people to central area of Lehigh Acres where highest land and least amount of wetland are located and move development away from the eastern and southeastern areas of Lehigh Acres; adjacent rural lands should have opportunities to be included in Lehigh Acres planning process to prevent urban sprawl in unregulated areas; abandon major infrastructure plans that promoted growth inconsistent with these criteria; where zones vacated, abandon/retrofit infrastructure (canals, roads); create regional stormwater management facilities to benefit Caloosahatchee/Orange Rivers, water quality restoration and protect Hickey and Bedman Creek watersheds. Since the projected growth is generally in an "L" pattern for near future, try to develop a "greenway" approximately 2 miles wide that extends north from State Road 82 along the County line on the east side of Lehigh Acres and connect north to Greenbriar Swamp and Hickey Creek, Bedman Creek watersheds (which include wetlands, scrubs and water storage); and a potential appropriate location for a regional water storage facility is adjacent to existing Harnes Marsh.

2.3.4.4 Legend: Golden Gate Estates - Zone 1 Zone 1 is the more densely developed western Golden Gate Estates. Criteria proposed include: avoid/minimize and mitigate wetland impacts; culverting entrance roads; address listed species concerns; development of an educational pamphlet on resource issues; and, implementation of a Florida Yards and Neighborhood program.

2.3.4.5 Legend: Golden Gate Estates - Zone 2 Zone 2 is the eastern portion of Golden Gate Estates toward Picayune Strand. Criteria proposed include: no more than 10% fill; no more than 50% fill in pervious areas; no impeding sheet flow; elimination of exotics; develop pamphlet on resource issues; Florida Yards and Neighborhood program; and culverting entrance roads. Zone 2 would also be designated a receiving area for mitigation.

2.3.4.6 Legend: Agriculture - Limited Intensification The Ensemble “assumes limited intensification of use, that is, no changes that require additional loss of native habitat, no changes (such as intensification of citrus) that would lower hydrology. For example, range and improved range stay the same, vegetable crops change or go to fallow field and back again. No golf course or ranchette development, as these are not associated with true agriculture.” The Ensemble assumes rotation of crops but no additional clearing.

2.3.4.7 Legend: Rural Low Density Criteria - Zoom A In Rural Residential, the alternative adds development of greater planning detail to identify existing flowways, forested habitats, and seasonal wetlands that are large or contiguous to one another. This information would then be used to protect these areas in a connected landscape as the area develops. Within Zoom C, two areas of rural are mapped immediately adjacent to Golden Gates Estates, one area north of Golden Gate Estates and one area south. For the north area, the criteria include: avoid and minimize impacts to wetlands; protect nesting areas; mitigate wide-ranging species including mangrove fox squirrels, off-site; and, maintain or improve hydrology (for example, weirs in Cocohatchee Canal). For the south area, the criteria include: avoid and minimize impacts to wetlands; protect red-cockaded woodpecker habitat or mitigate off-site when their viability is affected; mitigating off-site for wide-ranging species (black bear); and maintain or improve hydrology (for example, the depth of the I-75 canal). For both north and south areas, the alternative also adopts the Buffer Transition Zone criteria that requires project designs will: result in no net loss of wetland acreage and function; result in no net loss in historical water table height and recharge area; not alter water sheet flow characteristics; contribute to the restoration of historic flowways; preserve buffer zones around wetlands, flowways, natural streams, rivers, and creeks; not impact water quality; not contribute to hurricane shelter deficit nor increase evacuation times; and implement the principals adopted by the Estero Bay Agency on Bay Management (copy enclosed in Appendix F).

2.3.4.8 Legend: Preserve Criteria Within Zoom A, the area of Preservation Lands was drawn to emphasize connections between the Rural Residential and Airport preservation areas to the Six Mile Cypress Slough and between the Slough and Estero Bay. Preservation Lands were also drawn in wetland areas in the Rural areas between Lehigh Acres and the Caloosahatchee River. Within Zoom B, the mapping of Preserve used the Land Conservation/Preservation Strategy Map adopted by the Estero Bay Agency on Bay Management (copy enclosed in Appendix F), added connections to the boundary of the CREW for long range species, and proposes riparian corridors through the urban areas. Within Zooms C and D, the Ensemble proposes expansion of preserves beyond that mapped by the Comprehensive Plan and provides following criteria for project design and review: no public utilities; no new or expanded transportation; no well-field expansion; restoration or retrofit of certain areas with hydrologic problems (the retrofits listed are: add culverts under Tamiami Trail; “fix” I-75 canal plugs; protect Rookery Bay watershed; “fix” District 6 drainage basin works; “fix” Cocohatchee Canal; restore Clam Bay; and “fix” Golden Gate Canal to protect Naples Bay); and use as mitigation receiving areas only those portions of Preservation Lands that are currently not in public ownership.

2.3.4.9 Mining Mining is not identified separately as a category but is classified as either Rural or Preserve depending on the ultimate use.

2.3.5 ENSEMBLE T

This Ensemble seeks to increase the area of preserves through restore, retrofit, and redevelopment of vacant lands within Lehigh Acres, greater protection afforded to isolated wetlands, and limitation on the extent of clearing and filling activities, within Golden Gate Estates and other areas. Agricultural activities are proposed to be limited to existing acreage with limited intensification therein. Flowways and connectivity of habitat would be improved and/or restored. The alternatives used to assemble this Ensemble are as follows. The alternatives used to assemble this Ensemble are: Zoom A, Alternative 3A; Zoom B, Alternative 2B; Zoom C, Alternative 3A; and Zoom D, Alternative 3. In some cases, some particular criteria was proposed for one alternative, but not explicitly repeated in others. Therefore some

of the narratives below note to which portion of the study area the criteria applies to (each portion labeled either Zoom A, B, C, or D).

2.3.5.1 Legend: Development Within Zoom D, the Ensemble proposes flowway improvements along the Cocohatchee Canal, Golden Gate Canal, and sloughs in eastern Naples, coordinated with improvements within Preservation Lands.

2.3.5.2 Legend: Lehigh Acres Development and Lehigh Acres - Acquire, Restore, Fix (ARF) Within Lehigh Acres, this Ensemble proposes an Acquire, Restore, Fix (ARF), similar to the Restoration, Retrofit, and Redevelopment (3 R's) approach proposed for another alternative, to remove roads and canals in vacant areas to restore hydrology and preserve wildlife habitat.

2.3.5.3 Legend: Agriculture and Agriculture - Maintain Intensity Areas would remain agricultural but also delineated a sub-area where there would be no intensification in activity.

2.3.5.4 Legend: Agriculture - If End go to Preserve Current agriculture would continue with limited intensification but if agriculture ceases, then the lands would be placed in preservation.

2.3.5.5 Legend: Golden Gate Estates Criteria Within Zoom C, permitting would continue under the current processes but with additional protection afforded isolated wetlands by the following criteria: no general permits; determination of wetland jurisdiction prior to Collier County permitting; reconnection of wetlands along historic flowways; and, limitations on the clearing of residential lots. Within Zoom D, criteria are: no more than 10% fill; no more than 50% fill in pervious areas; no impeding sheet flow; elimination of exotics; develop pamphlet on resource issues; Florida Yards and Neighborhood program; and culverting entrance roads. This area would also be designated a receiving area for mitigation.

2.3.5.7 Legend: Rural No particular criteria noted.

2.3.5.8 Legend: Preserve Within Zoom A, the areas mapped Preserve provided filter marshes along Ten Mile Canal and the canals leading from Lehigh Acres. In addition, lands south of the Airport are proposed to be preserved. Within Zoom B, the areas mapped Preserve were based on an assembly of several items: the preserves shown in the Comprehensive Plan, all proposed acquisitions; the Strategic Habitat Conservation Area mapping for the Florida Panther; and, the Priority 1 and 2 areas of the Florida Panther Habitat Preservation Plan. It was found that all mapped eagle nests, rookeries, rare native plant communities, seasonal wetlands and flowways, and various coastal resources of interest were encompassed within these areas. Within Zoom D, the Ensemble proposes culverts within Camp Keais Strand and across Tamiami Trail to improve flowways.

2.3.5.9 Legend: Pending Review The group preparing the alternative could not agree whether to designate the location as development or preservation.

2.3.5.10 Mining Mining is considered in the Agricultural category to the extent consistent with the Comprehensive Plan.

2.3.6 ENSEMBLE U

This Ensemble proposes the largest area of preserve among the Ensembles through criteria that limit the conversion of natural vegetation to other land cover types. This criteria also seeks to increase the difficulty of placing fill in wetlands by "strict" application of the presumption, under the EPA Section 404(b)(1) guidelines, that alternative non-wetland sites are available. The alternatives used to assemble this Ensemble are: Zoom A, Alternative 5; Zoom B, Alternative 3B; Zoom C, Alternative 1A; and Zoom D,

Alternative 1A. In some cases, some particular criteria was proposed for one alternative, but not explicitly repeated in others. Therefore some of the narratives below note to which portion of the study area the criteria applies to (each portion labeled either Zoom A, B, C, or D).

2.3.6.1 Legend: Development Flowways are included through the urban areas.

2.3.6.2 Legend: Development: Urban Zone and Lehigh Acres Urban Zone For the Urban Zone within Zoom A, the alternative proposes "...a presumption that alternatives exist to locating dredge and fill activities in creeks, rivers, other historic flowways and adjacent wetlands; and to locating dredge and fill activities in isolated wetlands identified as important to wading birds, other species of concern, water quality, groundwater recharge or flood control." The proposal also describes numerous criteria for the Corps to apply during permit review. For example, certain limits to the use of nationwide and general permits, promotion of the restoration of flowways, and restoration of buffer zones. The proposal states the vision is, in part, to "...direct development into this zone...while maintaining watershed integrity within the zone."

2.3.6.3 Legend: Lehigh Acres ARF Zone For the Acquire, Restore, Fix (ARF) Zone within Lehigh Acres, the alternative proposes that the "Corps strictly applies the Section 404(b)(1) Guidelines, including: (1) a strong presumption that practicable alternatives exist outside of the ARF Zone to dredge and fill activities (except restoration/retrofit activities)..." The proposal also describes numerous criteria for the Corps to apply during permit review. For example, certain limits to the use of nationwide and general permits, application of the criteria of the Big Cypress Area of Critical State Concern regulations, and restoration of flowways. The proposal states the vision is, in part, to "...protect and restore critical resources..." The complete set of criteria is enclosed in Appendix F.

2.3.6.4 Legend: Golden Gate Estates Criteria A flowway program is suggested though without details. Within the more densely developed western Golden Gate Estates, criteria proposed include: avoid/minimize and mitigate wetland impacts; culverting entrance roads; address listed species concerns; development of an educational pamphlet on resource issues; and, implementation of a Florida Yards and Neighborhood program. Within the eastern portion of Golden Gate Estates (toward Picayune Strand), criteria proposed include: no more than 10% fill; no more than 50% fill in pervious areas; no impeding sheet flow; elimination of exotics; develop pamphlet on resource issues; Florida Yards and Neighborhood program; and, culverting entrance roads. The eastern portion would also be designated a receiving area for mitigation.

2.3.6.5 Legend: Agriculture and Agriculture - Maintain Intensity Some portions of the areas mapped Agriculture propose additional criteria that current agricultural activities would continue but intensification would be limited.

2.3.6.6 Legend: Rural Residential Zone Within Zoom A, the proposal provides criteria for an Agricultural Zone and a Buffer Zone. These would be applied to the Rural Residential designation of this alternative. The proposal provides "...a strong presumption that alternatives exist outside.." either the Buffer Zone or Agricultural Zone and includes numerous criteria for the Corps to apply during permit review. The proposal states the vision is, in part, that agricultural "...should remain in agricultural use, compatible with conservation purposes..." and to "...discourage urban expansion in and through..." the Buffer Zone. The complete set of criteria is enclosed in Appendix F.

2.3.6.7 Legend: Rural Development Criteria Criteria proposed are: one residential unit per five acres (overall); clustering; preserve 50% of the land area in natural state; maintain corridors, flowways with connectivity outside project boundaries; and 100% wetland preservation/restoration.

2.3.6.8 Legend: Preserve Within Zoom A, this Ensemble proposes denial of all permits in the areas mapped Preserve. The proposal states the vision is, in part, that these areas would be "...off limits to future development activity." The complete set of criteria is enclosed in Appendix F. Within Zoom B, the areas designated Preserve were based on the Land Conservation/Preservation Strategy Map adopted by the Estero Bay Agency on Bay Management. Included are flowways through the urban areas and within existing agricultural areas. Within Zoom D, areas mapped as Preserve include historic flowways within Golden Gate Estates and along Camp Keais Strand.

2.3.6.9 Legend: Mining Lands Mining lands are mapped with no comment.

2.4 ALTERNATIVES NOT WITHIN JURISDICTION OF LEAD AGENCY

The charge to the ADG specifically set forth the goals for the development of alternatives which protect natural environmental values, provide for sustainable economic growth, manage appropriate changes in water flows and quality, and respect public involvement and private rights. Some of the specific aspects set forth in a particular alternative will not be within the jurisdiction of the Corps. First, the Corps has jurisdiction over the placement of fill in wetlands and other Waters of the United States. Wetlands cover a portion of the study. Only those activities that are dependent upon the filling wetlands will be reviewed by the Corps. Second, the Corps only reviews activities proposed by and to be performed by the landowner. The Ensembles describe a range of possible activities that may or may not be proposed by the landowners. However, the analysis of the cumulative benefits and impacts presented by the Ensembles are within the purview of the Corps because the Corps must consider the cumulative impacts of its decision to issue a permit. Even though the permits that will be issued are only a subset of all the activities that will occur in the study area, the activities authorized by these permits will contribute to the cumulative total.

2.5 COMPARISON OF ALTERNATIVES

Table 3 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See Section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

2.6 MITIGATION

Unavoidable impacts proposed in applications for a Federal dredge and fill permit will be evaluated on a case-by-case basis, and compensatory, project-specific mitigation for wetland acreage and function will be addressed at that time.

2.7 AUTHORITIES TO IMPLEMENT

The U.S. Army Corps of Engineers [U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency] will exercise its [their] authority as described below.

2.7.1 U.S. ARMY CORPS OF ENGINEERS

Pursuant to Section 404 of the Clean Water Act, the Corps of Engineers has regulatory authority to permit the discharge of dredged or fill material into wetlands and other waters of the United States at specified disposal sites. The Corps conducts a public interest review of the probable impact of the proposed activity and its intended use. The review covers nineteen (19) factors, including effects upon conservation, fish and wildlife values, recreation, water quality, and cultural values. The guidelines pursuant to Section 404(b) of the Act require that impacts to the aquatic environment be avoided and minimized to the extent practicable. Also, unavoidable impacts are to be compensated (mitigated) to the extent practicable. A permit is typically issued provided that the proposed use is not contrary to the public interest, or not in compliance with the guidelines promulgated by the EPA pursuant to Section 404(b) of the Clean Water Act.

In determining whether to issue a permit, the Corps must also comply with other requirements including, but not limited to, the Section 7 of the Endangered Species Act of 1973 (50CFR part 402), the National Environmental Policy Act of 1969, the Coastal Zone Management Act, Sections 401, 404, and 404b(1) of the Clean Water Act of 1977, Section 10 of the Rivers and Harbors Act of 1899, Fish and Wildlife Coordination Act, and other applicable Federal laws. Modifying land for new uses also involves zoning, land use planning, water management, and other regulatory/planning requirements at the local, regional, State, and Federal level.

The Administrator of the EPA has the authority to prohibit the specification of any defined area, and to deny the use of any such defined area, for the placement or excavation of fill material. This veto authority can be exercised (only after notice and opportunity for public input and review) where the discharge of materials will have an unacceptable adverse effect on potable water supplies, fishery areas, wildlife areas, or recreational areas.

Memoranda of Agreement between the Department of the Army and the Department of the Interior (USFWS), the Department of Commerce (National Marine Fisheries Service), and the EPA allow the “elevation” of the decision to issue a permit above the District level pursuant to Section 404(q) of the Clean Water Act. These decisions to elevate are typically the result of: insufficient interagency coordination (procedural failure or failure to resolve concerns raised by the commenting agency(s)); significant new information being developed that did not previously exist; or the project raising environmental issues of national importance requiring policy level review. The permit decision is first elevated to the Division level, and if not resolved there, the commenting agency has the option to further elevate the decision to the national level, where the office of the Secretary of the Army would review the record, and Corps Headquarters would issue guidance to the District Engineer as to the disposition of the permit application.

2.7.2 U.S. FISH AND WILDLIFE SERVICE

Section 7 of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) (ESA) outlines the procedures for Federal interagency cooperation to conserve Federally listed species and designated critical habitats. Section 7(a)(1) directs all Federal agencies to utilize their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of species listed pursuant to the ESA. Section 7(a)(2) requires that each Federal agency, in consultation with the Secretary (Secretary of the Interior/Secretary of Commerce) shall ensure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

Consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (Services) in accordance with Section 7 of the ESA was not completed for any alternative presented in this DEIS. (The term “Services” is used to generically refer to both agencies together. This is not meant to imply that all actions discussed herein are taken by the Services jointly.) Actions proposed within the framework of this EIS will undergo consultation, either formal or informal, as appropriate.

The Corps will prepare biological assessments for “major construction activities” which may significantly affect the quality of the human environment as referred to in the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*). Major construction activities include dams, buildings, pipelines, roads, water resource developments, channel improvements, and other such projects that modify the physical environment and that constitute major Federal actions.

Although a biological assessment may not be required for all projects proposed within the framework of this EIS, formal consultation cannot be initiated until an assessment of effects is completed. The Corps may submit a biological assessment, or some other form of biological evaluation, early to benefit from the informal consultation process. The Corps may also request early consultations with the Services to reduce the conflicts between listed species or critical habitat and proposed actions. Early consultation is

an optional process that occurs before a prospective applicant files an application for a Federal permit. To qualify, a prospective applicant must provide the Corps, in writing: (1) a definite proposal outlining the action and its effects; and (2) intent to implement the proposal, if authorized.

A biological evaluation will be completed if listed species or critical habitat may be present in the action area. The Corps may designate the applicant or a non-Federal representative (often a consultant) to prepare the evaluation, although the Corps is responsible for the content of the evaluation and for the findings of effect. The evaluation ensures the Corps involvement and increases the chances for resolution during informal consultation.

The evaluation will address all listed and proposed species found in the action area, not just those listed and proposed species likely to be affected, to help make the determination of whether the proposed actions are likely to adversely affect listed species and critical habitat. Because proposed species will be addressed, the evaluation will help determine the need for conference as well as formal consultation. The evaluation should include a detailed description of all aspects of the proposed action; the results of surveys to determine the presence of listed species or their habitat; an analysis of the likely effects of the proposed action on the species or critical habitat based on biological studies, review of the literature, and views of species experts. The evaluation should also describe any known unrelated non-Federal activities, or cumulative effects, which are reasonably certain to occur and that are likely to affect listed species or critical habitat.

If, after review of the biological evaluation, the Corps determines that a proposed project has no likelihood of adverse effect, the Corps will request written concurrence from the Services. The Services' letters of concurrence, based on review of all biological information, completes informal consultation. Although not required, the Corps may also request written concurrence from the Services if a proposed action will have no effect on listed species or critical habitat. If the Corps determines that a proposed action may adversely affect listed species or critical habitat, the Corps will initiate formal consultation through a written request to the Services. The Services may meet or communicate with the Corps and applicant to gather additional information necessary to conduct the consultation. With early coordination and cooperation, the Services ensure the Biological Opinion, including an Incidental Take statement, is prepared and delivered within 135 days of initiation of formal consultation.

2.7.3 U.S. ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) has the authority to administer the Clean Water Act (CWA) statutes and regulations; however, the EPA has authorized or delegated the CWA Section 401, water quality program to the Florida Department of Environmental Protection. The EPA's role is to ensure that the delegated State agency's program is as stringent as the requirements of the Federal statutes and regulations. If it is determined that a state environmental program is deficient, the EPA must administer remedies to bring the program back into compliance.

The Clean Water Act (CWA) Section 404 dredge and fill program has not been delegated to the Florida Department of Environmental Protection and is administered by the Army Corps of Engineers. The EPA's role in the CWA Section 404 process is to provide independent comments on proposed permit applications to ensure the CWA Section 404(b)(1) Guidelines are met. In addition, the EPA has the authority to elevate permit objections under the CWA Section 404(q) process for projects that involve aquatic resources of national importance. In addition, under the CWA Section 404(c) "veto authority" the EPA must determine whether the proposed discharge of dredged or fill material will have an unacceptable adverse effect on either municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas. The veto authority may be used before, during or after the Army Corps' action on a permit application. The EPA may also exercise this authority in the absence of a permit application. The EPA is the only Federal agency that has the regulatory authority to veto a proposed project and to that end, the EPA has the final decision but also the burden of proof.

2.7.4 FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Section 401 of the CWA requires any applicant for a Federal permit that may result in a discharge of a pollutant into waters of the United States to obtain a certification in which the discharge originates. This certification must pertain not only to the construction of a facility, but also to the subsequent operation of the facility. In Florida, issuance of a State stormwater permit in accordance with Chapter 62-25, Florida Administrative Code (F.A.C.), or an Environmental Resource Permit (ERP) in accordance with Part IV of Chapter 373, Florida Statutes constitutes State water quality certification. Alternatively, a No-Permit-Required letter from the State signifies compliance with State water quality certification procedures.

Authorization for use of Sovereign submerged lands (under Chapter 18-21, F.A.C.) are reviewed concurrent with the ERP application and one cannot be issued without the other. "Sovereign submerged lands" means those lands including but not limited to, tidal lands, islands, sand bars, shallow banks, and lands waterward of the ordinary or mean high water line, beneath navigable fresh water or beneath tidally-influenced waters, which the State of Florida acquired title on March 3, 1845, by virtue of statehood, and which have not been heretofore conveyed or alienated. Authorization for use of Sovereign submerged lands can be issued by the State permitting agency or through an action of the Governor and Cabinet sitting as the Board of Trustees of the Internal Improvement Trust Fund.

Section 307 of the Coastal Zone Management Act of 1972 requires agencies conducting development projects which directly affect a states coastal zone to comply to the maximum extent practicable with the state's approved coastal zone management program. The Act also requires any non-Federal applicant for a Federal permit to conduct an activity affecting land or water uses in the state's coastal zone to furnish a certification that the proposed activity will comply with the state's coastal zone management program. The issuance of an ERP constitutes compliance with the State of Florida coastal zone management program under Section 380.23(3) (c), Florida Statutes.

2.7.5 SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Section 401 of the CWA requires any applicant for a Federal permit that may result in a discharge of a pollutant into waters of the United States to obtain a certification in which the discharge originates. This certification must pertain not only to the construction of a facility, but also to the subsequent operation of the facility. In Florida, issuance of a State stormwater permit in accordance with Chapter 62-25, Florida Administrative Code (F.A.C.), or an Environmental Resource Permit (ERP) in accordance with Part IV of Chapter 373, Florida Statutes constitutes State water quality certification. Alternatively, a No-Permit-Required letter from the State signifies compliance with State water quality certification procedures.

Authorization for use of Sovereign submerged lands (under Chapter 18-21, F.A.C.) are reviewed concurrent with the ERP application and one cannot be issued without the other. "Sovereign submerged lands" means those lands including but not limited to, tidal lands, islands, sand bars, shallow banks, and lands waterward of the ordinary or mean high water line, beneath navigable fresh water or beneath tidally-influenced waters, which the State of Florida acquired title on March 3, 1845, by virtue of statehood, and which have not been heretofore conveyed or alienated. Authorization for use of Sovereign submerged lands can be issued by the State permitting agency or through an action of the Governor and Cabinet sitting as the Board of Trustees of the Internal Improvement Trust Fund.

Section 307 of the Coastal Zone Management Act of 1972 requires agencies conducting development projects which directly affect a states coastal zone to comply to the maximum extent practicable with the state's approved coastal zone management program. The Act also requires any non-Federal applicant for a Federal permit to conduct an activity affecting land or water uses in the state's coastal zone to furnish a certification that the proposed activity will comply with the state's coastal zone management program. The issuance of an ERP constitutes compliance with the State of Florida coastal zone management program under Section 380.23(3) (c), Florida Statutes.

2.7.6 LOCAL GOVERNMENT

Chapter 163, Florida Statutes, requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest. All public and private development is required by this statute to conform with the area's local government comprehensive plan adopted pursuant to the statute. Lee County's Comprehensive Plan is found at Ordinance 89-02 with amendments. Collier County's Future Land Use Element of the Growth Management Plan is found at Ordinance 97-67.

Table 3. Summary of Direct and Indirect Impacts

| Evaluation Factor. | Measurement. | Q | R | S | T | U | What influenced evaluation. | Conclusion/Comparison. |
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| Avoidance of wetland impact. | Estimate of percent of total area of wetland that will be filled. | 6.6% | 7.0% | 5.6% | 5.8% | 5.5% | How flexible is typical configuration of site design for the land use compared to distribution/shape of wetlands in the area that land use is mapped. | Ensemble with less impact better satisfy requirement for avoidance. |
| Loss of uplands adjacent to wetlands. | Portion of study area preserved for natural resource benefits. | 38% | 38% | 42% | 42% | 43% | Existing preserves total 27%. Native vegetation (upland and wetland) occupy 58% of the study area. | Uplands outside of preserves have higher probability to be impacted. |
| Availability of compensatory mitigation. | Percent of total wetlands in study area that are within areas that are not now preserved but are proposed to be preserved ("new preserves"). | 17% | 19% | 22% | 23% | 24% | Typical compensation is to restore degraded wetlands and preserve in perpetuity. | Larger percentage provides greater selection of wetlands that could be restored. |
| Acreage ratio. | Acres of wetlands in "new preserves" divided by acres of wetlands that will be filled. | 2.6:1 | 2.7:1 | 4.0:1 | 3.9:1 | 4.4:1 | Some wetlands in "new preserves" will not be suitable for compensatory mitigation. | Larger ratio provides greater choice in lands to be acquired and restored. |
| Availability of replacement of wetland function. | Wetlands in "new preserves" were Converted to a scored high, medium, and low for their potential quantity of "units of restoration" and wetlands to be filled were Converted to a scored for the "units of impact". Ratio is the "units of restoration" divided by "units of impact". | 1.8 | 1.8 | 2.8 | 2.8 | 3.3 | Wetlands adjacent to existing development, canals, etc. Converted to a scored "low". | Higher ratio indicate greater assurance that ecosystemem benefits would be replaced. |
| Florida Panther | Percent of Priority 1 and 2 lands (within study are) ithin preserves. | 56% | 62% | 70% | 71% | 72% | Existing public preserves with panther use. | Higher percentage on public lands provide greater assurance of preserving population. |
| Florida Panther | Percentage of lands in agriculture and whether criteria for non-intensification of use applied. | 26%, No criteria | 35%, No criteria | 18%, Criteria | 25%, Criteria | 19%, Criteria | Low-intensity agriculture minimizes impacts to panther. | Greater area of low-intensity agriculture increases assurance of conservation of the species. |
| Scrub Jay | Number of families within contiguous preserves. | 6 | 6 | 11 | 8 | 6 | 26 known families within study area. | Higher number within contiguous preserves increase assurance of preservation of species. |

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| Red cockaded woodpeckers. | Number of known clusters located within contiguous preserves. | 10 | 2 | 13 | 12 | 18 | 40 known groups in study area. Existing sites in old growth pine. | Higher number of groups in preserves increases assurance of preservation of the species. |
| Bald Eagle. | Number of nests located within contiguous preserves. | 18 | 18 | 20 | 19 | 18 | 74 known nests in study area. Concern also with adjacent lands. | Higher number of nests in contiguous preserve provides more assurance of preservation of the species. |
| Woodstork. | Number of rookeries within contiguous preserves. | 11 | 9 | 12 | 11 | 14 | 14 known rookeries in study area. Also concerned with foraging area. | Higher number of rookeries in contiguous preserves provide more assurance of preservation of species. |
| Audubon's crested caracara. | Continuation of low intensity agriculture (compare to Panther) and preservation of seasonal wetlands (see Seasonal Wetlands). | 140,000 acres agriculture, no criteria. | 181,000 acres agriculture, no criteria. | 97,000 acres agriculture w/ limited intensification. | 130,000 acres agriculture, 54,000 with no intensification. | 152,000 acres agriculture, some with limited intensification. | Study area fringe of 10 county area where population is found. | Greater areas of continuation of low intensity agriculture and greater area of preservation of seasonal wetlands better provide opportunities for population to expand. |
| Piping Plover | Affect on beaches directly or by water quality change. | | | | | | Barrier beaches used as wintering sites. | No direct effect (fill) but could be affected by water quality. Increased coastal development degrades habitat. |
| Snail Kite | Preservation of seasonal wetlands. | | | | | | Feed only on apple snails, only found in seasonal wetlands. | Greater number of seasonal wetlands within contiguous preserves increases probability of maintenance of species. |
| West Indian Manatee. | Coastal development and seagrass loss. | | | | | | Boating mortality, loss of seagrass from prop dredging and decline in water quality. | Increased coastal development degrades habitat. |
| American Crocodile. | Changes in timing and quantity of freshwater (see Flowways factor). | | | | | | Changes in freshwater flows affects plant and animal communities in estuaries. | Maintenance of flowways reduce potential changes in hydromorphology, increasing potential for preservation of the species. Increased coastal development degrades habitat. |

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| American Alligator | Area of seasonal wetlands in preserves (see Seasonal Wetlands factor) and flowways (see Flowways factor). | | | | | | Habitat is in large wetlands areas. | Preservation of wetlands within contiguous preserves continue the population of this species. |
| Eastern Indigo Snake. | Native Habitat | | | | | | | More fragmentation and reduction in habitat impacts species. |
| Sea Turtles (Loggerhead, Green, Hawksbill, and Kemp's Ridley) | Effect on beaches. | | | | | | Effects include artificial lighting, beach renourishment, human presence, and exotic vegetation. | None directly affect beach. More coastal development degrades habitat. |
| Multi-Species Recovery Plan (MSRP) | BPJ assessment of how the alternative enhances implementation of the MSRP. Converted to a score from 4 (best) to 24. | 17 | 23 | 6 | 13 | 9 | Whether landuse/criteria included that explicitly supported the MSRP. | Those with mapping of preserves or, for all land types, criteria such as found in the MSRP enhanced its implementation. |
| Strategic Habitat Conservation Area (SHCA). | Percentage of the total area of SHCA in the study area that will be in preserve. | 56% | 56% | 65% | 69% | 69% | 8.2% of SHCA in State is within study area. | Lower percentage indicates greater reliance on habitat found on private land. |
| Wading Bird Rookeries. | Number rookeries found within contiguous preserves. | 17 | 13 | 17 | 18 | 17 | Not measured is effect on foraging range up to 15 kilometers (30 kilometers for Woodstorks). Total 25 sites. | Higher number of rookeries and foraging range in preserves provide more assurance of preservation of species. |
| Seasonal wetlands. | Percent of total area that will be found within contiguous preserves. | 70% | 73% | 76% | 75% | 86% | Seasonal wetlands not evenly distributed across landscape. | |
| Connectivity provided between major habitat areas. | BPJ assessment of number of connections explicitly provided. Converted to a score 4 (best) to 24. | 21 | 18 | 6 | 10 | 8 | Wider the connection Converted to a scored lower (better). | Wider and more numerous connections are more immune to disturbance from adjoining land uses. |
| Flowways. | Similar to Connectivity, since most connections follow natural flowways. Converted to a score 4 (best) to 24. | 18 | 23 | 5 | 6 | 8 | Routing flows through contiguous natural areas Converted to a scored lower (better). | Wider flowways of natural vegetation preserved ability to store floodwaters and prevent downstream pulse flows. |
| Regional significant natural resources. Plans and goals of the Southwest Florida Regional Planning Council. | Assessment of how enhanced the implementation of plans and goals. Converted to a score 4 (best) to 24. | 20 | 17 | 4 | 6 | 7 | Comparison of mapping or criteria to the goals. | Explicit inclusion of maps or criteria better support the goals. |

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| High priority wetlands important to wetland dependent species. | Percentage of wetlands and uplands that would be within contiguous preserves. | 79% wetland / 37% upland | 79% wetland / 38% upland | 82% wetland / 46% upland | 86% wetland / 77% upland | 87% wetland / 49% upland | 37% of study area is important wetland and 19% of study area is important upland. | Percentages of upland lower than wetland indicate greater imbalance in mix of plant communities. |
| Shoreline. | Assessment how enhances or degrades fringe's ability to provide aquatic nursery and foraging habitat. Converted to a score 4 (best) to 24. | 20 | 21 | 7 | 7 | 8 | Reduction in area of mangrove, saltmarsh, or, behind the fringe, pineland and hardwood hammock plant communities. | No direct affect of mangrove or salt marsh, but higher Converted to a scores reflect development behind the fringe. |
| Historic Properties. | Not. | | | | | | Site specific. | Addressed in specific application. |
| Property Rights. | Assessment of reduction in rights. Converted to a score 48 (least effect) to 0 (greatest reduction). | 45 | 47 | 18 | 21 | 12 | Affect on fair market value of property, reasonable expectation for use of land and return on investment, and vested rights. | |
| Difference from Comprehensive Plans. | Assessment of significance of difference. Converted to a score 16 (most agreement) to 0 (greatest difference). | 14 | 16 | 7 | 7 | 5 | Additional criteria or restrictions lowered Converted to a score. | Large difference between Ensembles. |
| Economic Sustainability: Job Creation | Assessment on creation or elimination of jobs. Converted to a score 16 (positive influence) to 0 (less protective of economic sustainability) | 13 | 13 | 6 | 5 | 4 | One influence is restrictions on intensification of agriculture prevents year round jobs from citrus. | Restrictions on area or type of land use restrict opportunity for job creation. |
| Economic Sustainability: Home affordability. | Assessment of change in cost of homes. Converted to a score 16 (positive influence) to 0 (less protective of economic sustainability). | 11 | 11 | 6 | 6 | 4 | One is restrictions on density (number of homes per acre). | More restrictions increases cost per unit of homes. |
| Economic Sustainability: Cost of living. | Assessment of change in costs. Converted to a score 16 (positive influence) to 0 (less protective of economic sustainability). | 10 | 10 | 7 | 7 | 7 | Restrictions add to costs. Costs passed to consumers. | More restrictive criteria increases cost of living. |
| Economic Sustainability: Property tax base. | Assessment of the area of development. Converted to a score 16 (positive influence) to 0 (less protective of economic sustainability). | 13 | 14 | 7 | 6 | 5 | Number of acres and type of land use. | Restrictions on use of land (intensification of agriculture) or area of development reduces tax base. |

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| Economic Sustainability: Cost to implement. | Assessment of relative cost to acquire preserves and perform restoration. Converted to a score 16 (positive influence) to 0 (less protective of economic sustainability). | 12 | 13 | 5 | 6 | 3 | Area of proposed "new preserves". | Larger "new preserves" adds costs passed to local goods and services. |
| Economic Sustainability: Increased taxes. | "Cost to implement" divided by "Property Tax Base". Converted to a score 16 (positive influence) to 0 (less protective of economic sustainability). | 12 | 13 | 6 | 6 | 4 | Preserves must be supported by property tax base. | Higher area of preserves at same time as smaller area of development increases taxes. |
| Aesthetics. | Not. | | | | | | Areas of contiguous preserve. | Many persons attracted to area for presence of natural areas. |
| Management of Public Lands. | Narrative assessment of effect on management. | Greatest area of development. | Greatest area of agriculture, preferable to urban land uses. | Increases area of preserve adjacent to public lands. | Less urban adjacent to Corkscrew Marsh. | More restrictive criteria. | Considered (1) compatibility of the surrounding land use with the land management plans and (2) whether change in land use degrade or improve natural resources on public land. | Management least effected when public lands surrounded by low intensity activities and by expansion of contiguous preserves. |
| Water Quality: Pollution Loading | Assessment. Converted to a score 3/+ (least likely to affect water quality) to 15/0 (more likely an impact). | 13/0 | 15/0 | 6/0 | 9/+ | 6/+ | Type of land use and type of treatment of the runoff. | Reduction in area of urban or criteria to provide treatment reduced likelihood of impact. |
| Water Quality: Freshwater pulses. | Assessment. Converted to a score 3/+ (least likely to affect water quality) to 15/0 (more likely an impact). | 12/0 | 13/0 | 7/0 | 6/+ | 6/+ | Area of new impervious surface and acres of wetland preservation. | Increase in urban with decrease in wetland areas (that provide peak storage) increases pulses. |
| Water Quality: Habitat Loss | Assessment. Converted to a score 3/+ (least likely to affect water quality) to 15/0 (more likely an impact). | 13/0 | 12/0 | 6/+ | 7/+ | 4/+ | Quantity of wetlands. | Higher quantity of natural vegetation preserved maintains capability to assimilate pollutants. |
| Water Quality: Groundwater impact. | Assessment. Converted to a score 3/+ (least likely to affect water quality) to 15/0 (more likely an impact). | 11/+ | 11/+ | 5/0 | 7/0 | 6/0 | Protection of Surficial Aquifer System. | Protection of lands surrounding wellfields either by criteria or placing in preserve reduces likelihood of impact. |

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| Hurricane Preparedness | Assessment. | Increase in urban area. | | | | | | Increase in population offset by increase in roads and shelters. | None were considered to have change preparedness. |
| Water Management. (7 factors: infrastructure, home damage, home construction, flood depth, historic flow patterns, water storage, and aquifer zoning.) | Assessment whether seven factors were "addressed", Converted to a score a "+". Converted to a score is the number of +'s. Higher the Converted to a score, the less potential for impact. | 6 | 14 | 17 | 13 | 14.5 | | Provision for funding infrastructure. Criteria to prevent home construction in floodplain. Preservation of flowways. Preservation of wetlands (store water and preserve groundwater levels). | R provides criteria for homes within floodplain and funds infrastructure. S, T, and U provide wetland preserves and flowways. |
| Cumulative impacts: Social factors. (4 factors: Infant mortality, Road needs, Crime rates, Hurricane vulnerability). | Assessment of the cumulative effect for each of the individual factors. Lower the Converted to a score, the less likely will be a degradation. | 46 | 65 | 36 | 40 | 42 | | Area of urban development. For Hurricane vulnerability, presence of flowways. | Increase in urbanization has cumulative impacts, but flooding from hurricane addressed by presence of flowways. |
| Cumulative Impacts: Environmental factors. (6 factors: Air pollution, Water pollution, Watershed indicators (vulnerability of watershed degradation), Wetlands, Hydrology, and Quantity of preserve.). | Assessment of the cumulative effect for each of the individual factors. Lower the Converted to a score, the less likely will be a degradation. | 104 | 113 | 72 | 69 | 71 | | Area of development and contiguous preserves. Presence of flowways. | Greater development increases of air and water pollution (and vulnerability of watershed) while increases in contiguous preserves reduces impacts to wetlands, hydrology, and preserves. |